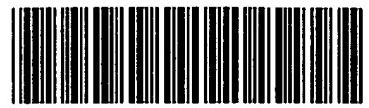


Tany



PCT10

RAW SEQUENCE LISTING DATE: 06/12/2002
PATENT APPLICATION: US/10/049,358 TIME: 12:22:42

Input Set : A:\10-049,358-Sequence Listing.txt
Output Set: N:\CRF3\06122002\J049358.raw

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3 <110> APPLICANT: Davis, Maria
4      Nelson, John
5      Kumar, Shiv
6      Finn, Patrick
7      Nampalli, Satyam
8      Flick, Parke
10 <120> TITLE OF INVENTION: TAQ DNA Polymerase Having an Amino Acid Substitution at
11      E681 and Homologs Thereof Exhibiting Improved Salt
12      Tolerance
14 <130> FILE REFERENCE: PB9944
16 <140> CURRENT APPLICATION NUMBER: 10/049,358
C--> 17 <141> CURRENT FILING DATE: 2002-05-17
19 <150> PRIOR APPLICATION NUMBER: PCT/US00/22150
20 <151> PRIOR FILING DATE: 2000-08-10
22 <150> PRIOR APPLICATION NUMBER: 60/148,012
23 <151> PRIOR FILING DATE: 1999-08-10
25 <160> NUMBER OF SEQ ID NOS: 3
27 <170> SOFTWARE: PatentIn Ver. 2.1
29 <210> SEQ ID NO: 1
30 <211> LENGTH: 832
31 <212> TYPE: PRT
32 <213> ORGANISM: Thermus aquaticus
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36      1           5           10          15
38 Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly
39      20          25          30
41 Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala
42      35          40          45
44 Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val
45      50          55          60
47 Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly
48      65          70          75          80
50 Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu
51      85          90          95
53 Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu
54      100         105         110
56 Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys
57      115         120         125
59 Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp
60      130         135         140
62 Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly
63      145         150         155         160

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RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/049, 358

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Output Set: N:\CRF3\06122002\J049358.raw

65 Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro
 66 165 170 175
 68 Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn
 69 180 185 190
 71 Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu
 72 195 200 205
 74 Glu Glu Trp Gly Ser Leu Glu Ala Leu Lys Asn Leu Asp Arg Leu
 75 210 215 220
 77 Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys
 78 225 230 235 240
 80 Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val
 81 245 250 255
 83 Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe
 84 260 265 270
 86 Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu
 87 275 280 285
 89 Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
 90 290 295 300
 92 Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp
 93 305 310 315 320
 95 Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Pro
 96 325 330 335
 98 Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu
 99 340 345 350
 101 Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro
 102 355 360 365
 104 Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
 105 370 375 380
 107 Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
 108 385 390 395 400
 110 Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu
 111 405 410 415
 113 Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg Glu
 114 420 425 430
 116 Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr Gly
 117 435 440 445
 119 Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala
 120 450 455 460
 122 Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly His
 123 465 470 475 480
 125 Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp
 126 485 490 495
 128 Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg
 129 500 505 510
 131 Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile
 132 515 520 525
 134 Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr
 135 530 535 540
 137 Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu

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Input Set : A:\10-049,358-Sequence Listing.txt
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138	545	550	555	560
140	His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser			
141	565	570	575	
143	Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln			
144	580	585	590	
146	Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala			
147	595	600	605	
149	Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly			
150	610	615	620	
152	Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr			
153	625	630	635	640
155	Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro			
156	645	650	655	
158	Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly			
159	660	665	670	
161	Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu			
162	675	680	685	
164	Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg			
165	690	695	700	
167	Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val			
168	705	710	715	720
170	Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg			
171	725	730	735	
173	Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro			
174	740	745	750	
176	Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu			
177	755	760	765	
179	Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val His			
180	770	775	780	
182	Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala			
183	785	790	795	800
185	Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro			
186	805	810	815	
188	Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Glu			
189	820	825	830	
195	<210> SEQ ID NO: 2			
196	<211> LENGTH: 560			
197	<212> TYPE: PRT			
198	<213> ORGANISM: Thermus aquaticus			
200	<400> SEQUENCE: 2			
201	Met Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu			
202	1	5	10	15
204	Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu			
205	20	25	30	
207	Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala			
208	35	40	45	
210	Asp Leu Leu Ala Leu Ala Ala Arg Gly Gly Arg Val His Arg Ala			
211	50	55	60	
213	Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu			

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Input Set : A:\10-049,358-Sequence Listing.txt
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214	65	70	75	80
216	Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu			
217	85	90	95	
219	Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser			
220	100	105	110	
222	Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr			
223	115	120	125	
225	Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn			
226	130	135	140	
228	Leu Trp Gly Arg Leu Glu Gly Glu Arg Leu Leu Trp Leu Tyr Arg			
229	145	150	155	160
231	Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr			
232	165	170	175	
234	Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val			
235	180	185	190	
237	Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly			
238	195	200	205	
240	His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe			
241	210	215	220	
243	Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys			
244	225	230	235	240
246	Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro			
247	245	250	255	
249	Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser			
250	260	265	270	
252	Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg			
253	275	280	285	
255	Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser			
256	290	295	300	
258	Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly			
259	305	310	315	320
261	Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val			
262	325	330	335	
264	Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser			
265	340	345	350	
267	Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His			
268	355	360	365	
270	Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp			
271	370	375	380	
273	Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Tyr Gly Val Leu Tyr			
274	385	390	395	400
276	Gly Met Ser Ala His Arg Leu Ser Gln Arg Leu Ala Ile Pro Tyr Glu			
277	405	410	415	
279	Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val			
280	420	425	430	
282	Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr			
283	435	440	445	
285	Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala			
286	450	455	460	

RAW SEQUENCE LISTING
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Input Set : A:\10-049,358-Sequence Listing.txt
Output Set: N:\CRF3\06122002\J049358.raw

288 Arg Val Lys Ser Val Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
289 465 470 475 480
291 Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu
292 485 490 495
294 Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val His
295 500 505 510
297 Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala
298 515 520 525
300 Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro
301 530 535 540
303 Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Glu
304 545 550 555 560
310 <210> SEQ ID NO: 3
311 <211> LENGTH: 830
312 <212> TYPE: PRT
313 <213> ORGANISM: Thermus aquaticus
315 <400> SEQUENCE: 3
316 Met Arg Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu
317 1 5 10 15
319 Val Ala Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly
320 20 25 30
322 Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala
323 35 40 45
325 Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val
326 50 55 60
328 Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly
329 65 70 75 80
331 Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu
332 85 90 95
334 Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu
335 100 105 110
337 Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys
338 115 120 125
340 Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp
341 130 135 140
343 Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly
344 145 150 155 160
346 Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro
347 165 170 175
349 Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn
350 180 185 190
352 Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu
353 195 200 205
355 Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu
356 210 215 220
358 Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys
359 225 230 235 240
361 Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val
362 245 250 255

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/049,358

DATE: 06/12/2002

TIME: 12:22:43

Input Set : A:\10-049,358-Sequence Listing.txt

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